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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DANIELE MANGANO

Appeal 2015-006618
Application 13/888,062
Technology Center 2100

Before JEAN R. HOMERE, DEBRA K. STEPHENS, and HUNG H. BUI,
Administrative Patent Judges.

STEPHENS, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134 from a Final Rejection of claims 1–36. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

STATEMENT OF THE INVENTION

According to Appellant, the claims are directed to a method and device for aborting transactions to permit execution of new tasks by

pipelining elimination of current task transactions and executing transactions of the new tasks (Abstract). Claims 1 and 14, reproduced below, are exemplary of the claimed subject matter:

1. A method, comprising:

receiving, by one or more processing devices, an indication to abort one or more current tasks being executed by a signal processing system having an interface block and one or more processing cores;

responding, by the one or more processing devices, to the received indication by:

pipelining elimination of one or more transactions associated with said one or more current tasks; and

executing one or more transactions associated with one or more new tasks.

14. A non-transitory computer-readable medium containing contents which configure one or more processing devices to perform a method, the method comprising:

responding to an indication to abort one or more current tasks being executed by a signal processing system having an interface block and one or more processing cores by:

pipelining elimination of one or more transactions associated with said one or more current tasks; and

concurrently executing one or more transactions associated with one or more new tasks.

REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal are:

Epstein	US 5,016,162	May 14, 1991
Goyal	US 6,055,579	Apr. 25, 2000
Nelson	US 7,870,369 B1	Jan. 11, 2011

OMAPP5912 Multimedia Processor Peripheral Interconnects Reference Guide, Texas Instrument Literature Number: SPRU7584 (2004) (OMAP).

REJECTIONS

Claims 1–4, 6–9, 11–17, 19–22, and 24–27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over OMAP and Nelson (Final Act. 3–18).

Claims 5, 10, 18, and 23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over OMAP, Nelson, and Epstein (Final Act. 18–19).

Claims 28–36 stand rejected under 35 U.S.C. §103(a) as being unpatentable over OMAP, Nelson, and Goyal (Final Act. 20–25).

ISSUES

35 U.S.C. § 103(a): Claims 1–4, 6–9, 11–17, 19–22, and 24–27

Appellant contends the claimed invention as recited in claims 1–4, 6–9, 11–17, 19–22, and 24–27, is not obvious over OMAP and Nelson (App. Br. 29–45). The issues presented by the arguments are:

Issue 1: Has the Examiner failed to show the combination of OMAP and Nelson teaches, suggests, or otherwise renders obvious “pipelining elimination of one or more transactions associated with said one or more current tasks,” as recited in independent claim 1 and commensurately recited in independent claims 6, 11, 14, and 19?

Issue 2: Has the Examiner failed to show the combination of OMAP and Nelson teaches, suggests, or otherwise renders obvious “concurrently executing one or more transactions associated with one or more new tasks,” as recited in independent claim 14 and commensurately recited independent claim 24?

Issue 3: Has the Examiner failed to show the combination of OMAP and Nelson teaches, suggests, or otherwise renders obvious “eliminating a pending transaction marked as aborted in response to a return of transaction results associated with the pending transaction,” as recited in claim 3?

Issue 4: Has the Examiner failed to show the combination of OMAP and Nelson teaches, suggests, or otherwise renders obvious “a control module configured to control the memory to mark as aborted the one or more pending transactions associated with the one or more current tasks and to control the filter to discard responses to transactions marked as aborted,” as recited in claim 8 and commensurately recited in claim 21?

ANALYSIS

Issue 1: Independent Claims 1, 6, 11, and 19

Appellant argues Nelson does not disclose the disputed limitation: “pipelining elimination of one or more transactions associated with said one or more current tasks,” as recited in claim 1 because “Nelson marks

operations as bogus so that the faulting operation and subsequent operations are not allowed to actually execute” which results in pipeline control of future operations (App. Br. 29–30). More specifically, Appellant argues when an op issues, the system of Nelson responds (*id.*).

Initially, as a matter of claim construction, we agree with the Examiner that the term “associated with” is a broad term (Ans. 25). Appellant has not identified where in the Specification this term is defined. Nor has Appellant proffered sufficient evidence or argument to persuade us the Examiner’s interpretation is too broad or unreasonable in light of the Specification. Additionally, we are not persuaded by Appellant’s argument that a future transaction or a subsequent transaction is not a transaction “associated with said one or more current tasks.” (App. Br. 30).

Appellant further contends OMAP and Nelson are directed to error processing; therefore, an ordinarily skilled artisan would not have been motivated to respond to an indication to abort a current task by pipelining elimination of a transaction, and executing a transaction associated with a new task (*id.* at 30). Rather, Appellant asserts, in Nelson, aborted operations continue executing without altering the architectural state (*id.*). Thus, according to Appellant, a modification to Nelson would change its principle of operation and render it unsuitable for its intended purpose (*id.* at 30–31). We are not persuaded combining the teachings and suggestions of OMAP and Nelson would have changed the principle of operation of Nelson, as argued by Appellant (*id.*). Nor are we persuaded the combination would render the combination unsuitable for its intended purpose. Appellant argues to meet the claim limitations, the Examiner must modify Nelson and the modifications would render Nelson unsuitable for its intended purpose

(Reply Br. 6). However, the Examiner relies on OMAP's indication to abort and executing transactions associated with new tasks with Nelson's pipelining elimination of transactions associated with current tasks (Ans. 26). "It is well-established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements" (*In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012) (citing *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (en banc) (noting that the criterion for obviousness is not whether the references can be combined physically, but whether the claimed invention is rendered obvious by the teachings of the prior art as a whole))).

Furthermore, "when a patent 'simply arranges old elements with each performing the same function it had been known to perform' and yields no more than one would expect from such an arrangement, the combination is obvious" (*KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (quoting *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976))). Here, the Examiner combines Nelson's pipelining elimination with OMAP's processing of current and new tasks — each performing the same function it had been known to perform, and yielding no more than an ordinarily skilled artisan would expect from such a combination. Therefore, we are persuaded the *combined* teachings of OMAP and Nelson would have taught, suggested, or otherwise rendered obvious the method recited in claim 1.

Consequently, we are in accord with the Examiner that the *combined* teachings of OMAP and Nelson would have taught, suggested, or otherwise rendered obvious the method recited in claim 1.

Appellant presents the same arguments set forth for claim 1, in the arguments for patentability of commensurately recited independent claims 6,

11, and 19 (App. Br. 33–34, 36–37, and 41–42). Accordingly, we are not persuaded the Examiner erred by determining the combination of OMAP and Nelson teaches, suggests, or otherwise renders obvious the limitations as recited in independent claims 1, 6, 11, and 19.

Issue 2: Claims 14 and 24

With respect to claims 14 and 24, Appellant additionally argues Nelson allows aborted operations to “continue executing,” while taking care to prevent the execution from altering the architectural state and if Nelson were modified to concurrently perform new operations instead of allowing the aborted operations to continue, albeit in a protected mode, Nelson would no longer be suitable for its intended purpose (App. Br. 39, 45). Initially, as a matter of claim construction, we note the “one or more transactions associated with one or more new tasks” concurrently executed are not related to the “one or more transactions associated with said one or more current tasks,” as recited in claim 14 or as similarly recited in claim 24. Nonetheless, we determine the Examiner has not addressed with any specificity, where Nelson teaches, suggests, or renders obvious “concurrently executing one or more transactions associated with one or more new tasks,” as recited in independent claim 14 and commensurately recited in independent claim 24.

Accordingly, we are persuaded the Examiner has not shown the combination of OMAP and Nelson teaches, suggests, or otherwise renders obvious the limitations as recited in independent claims 14 and 24.

Issue 3: Claim 3

Appellant argues Nelson fails to teach “eliminating a pending transaction marked as aborted in response to a return of transaction results associated with the pending transaction,” as recited in claim 3 (App. Br. 32–33). According to Appellant, Nelson’s execution mechanism for subsequent operations are addressed but these mechanisms do not occur “in response to a return of transaction results associated with the pending transaction” (*id.*). More specifically, Appellant contends the Examiner unreasonably interprets processing of a future reissue operation as a pending transaction associated with a current task (*id.*). Thus, Appellant argues it is unreasonable to find Nelson’s future reissue operation teaches a pending transaction which is eliminated in response to a return of transaction results associated with the pending transaction (Reply Br. 8).

Initially, as a matter of claim construction, we note the claim does not recite “a pending transaction” is one of the “one or more pending transactions of the one or more transactions.” For purposes of our analysis, we interpret “a pending transaction” as “the pending transaction.”

The Examiner finds Nelson’s bogus flag accompanies a re-issue operation (Ans. 28). Thus, the Examiner determines, using the broadest reasonable interpretation, the re-issue operation teaches a “pending transaction” marked as aborted in response to results associated with the transition (Ans. 28).

Nelson teaches:

In some embodiments a bogus-flag is asserted to indicate an op is bogus (and deasserted otherwise). The operation is thus allowed to re-issue, but it is marked as bogus by the bogus-flag. If the op is bogus, the corresponding bogus-flag is checked. If the op is bogus,

Whenever an op

then the op is converted to a no-operation, or NOP (as far as execution of the op is concerned).

(Nelson, 22:56–63). We agree with the Examiner that the re-issue operation is a pending transaction (Ans. 28). The re-issue operation is marked as aborted (marked as bogus by the bogus-flag) (Nelson, 22:55–59). When the op (operation) issues, the bogus-flag is checked (*id.* at 22:60–61). If the op is bogus, the op is converted to a no-operation (NOP) and thus, the operation is eliminated (*id.* at 22:61–63). Thus, we are not persuaded Nelson fails to teach, suggest, or otherwise render obvious “eliminating a pending transaction marked as aborted in response to a return of transaction results associated with the pending transaction,” as recited in claim 3.

Issue 4: Claims 8 and 21

With respect to claim 8, Appellant argues Nelson does not disclose the recited control module because Nelson’s execution mechanisms for subsequent operations are addressed, but these mechanisms do not occur when a response to a transaction marked as aborted is received (App. Br. 35–36). Appellant additionally argues Nelson’s reissue operation is not the recited pending transactions associated with a current task (*id.*).

As set forth with respect to claim 3, we are not persuaded by Appellant’s argument that Nelson’s reissue operation does not teach a pending transaction associated with a current task. Additionally, as set forth above, Nelson teaches marking as aborted, a pending transaction associated with a current task and controlling the filter to discard responses to transactions marked as aborted. More specifically, we agree with the Examiner that the re-issue operation is marked as bogus (aborted) (Ans. 28;

Nelson, 22:56–59). When the operation issues, the bogus-flag is checked, and if the op is bogus, the op is converted to a NOP (*id.*). Thus, Nelson teaches a control module configured to control the filter to discard responses to transactions marked as aborted. Claim 21 is recited and argued commensurately (App. Br. 40–41); therefore, Appellant has not persuaded us the combination of OMAP and Nelson fails to teach, suggest or otherwise render obvious “a control module configured to control the memory to mark as aborted the one or more pending transactions associated with the one or more current tasks and to control the filter to discard responses to transactions marked as aborted,” as recited in claim 8 and commensurately recited in claim 21.

Summary:

Dependent claims 2, 4, 7, 9, 12, 13, 20, and 22, are not separately argued and thus, fall with their respective independent and intervening dependent claims. Therefore, we sustain the rejection of claims 1–4, 6–9, 11–13, and 19–22 under 35 U.S.C. § 103(a) for obviousness over OMAP and Nelson.

Dependent claims 15–17 and 25–27 depend from independent claims 14 and 24 respectively, and thus, stand with their respective independent claims. It follows, we do not sustain the rejection of claims 14–17 and 24–27 under 35 U.S.C. § 103(a) for obviousness over OMAP and Nelson.

35 U.S.C. § 103(a): Claims 5, 10, 18, and 23; Claims 28–36

Appellant contends their claimed invention as recited in claims 5, 10, 18, and 23 and in claims 28–36, is not obvious based on their dependence

from their respective independent claims 1, 6, 11, 14, 19, and 24 (App. Br. 34, 37, 38, 40, 41, 43, 45).

For the reasons set forth above, dependent claims 5, 10, 23, and 29–36 fall with their respective independent claims. Accordingly, we sustain the rejection of claims 5, 10, and 23 under 35 U.S.C. § 103(a) for obviousness over OMAP, Nelson, and Epstein and the rejection of claims 29–36 under 35 U.S.C. § 103(a) for obviousness over OMAP, Nelson, and Goyal.

Dependent claims 18 and 28 stand with their respective independent claims 14 and 24. Accordingly, we do not sustain the rejection of claim 18 under 35 U.S.C. § 103(a) for obviousness over OMAP, Nelson, and Epstein and the rejection of claim 28 under 35 U.S.C. § 103(a) for obviousness over OMAP, Nelson, and Goyal.

DECISION

The Examiner's rejection of claims 1–4, 6–9, 11–13, and 19–22 under 35 U.S.C. § 103(a) as being unpatentable over OMAP and Nelson is affirmed.

The Examiner's rejection of claims 14–17 and 24–27 under 35 U.S.C. § 103(a) as being unpatentable over OMAP and Nelson is reversed.

The Examiner's rejection of claims 5, 10, and 23 under 35 U.S.C. § 103(a) as being unpatentable over OMAP, Nelson, and Epstein is affirmed.

The Examiner's rejection of claim 18 under 35 U.S.C. § 103(a) as being unpatentable over OMAP, Nelson, and Epstein is reversed.

The Examiner's rejection of claim 28 under 35 U.S.C. § 103(a) as being unpatentable over OMAP, Nelson, and Goyal is reversed.

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The Examiner's rejection of claims 29–36 under 35 U.S.C. § 103(a) as being unpatentable over OMAP, Nelson, and Goyal is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART